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Claims

[c1] 1.A combustion chamber for a two-cycle engine comprising:
a first zone having an axis of symmetry generally aligned with a cylinder bore;
a second zone having an axis of symmetry generally aligned with a fuel spray projection from a fuel injector; and
wherein the axis of symmetry of the second zone is skewed and offset from the axis of symmetry of the first zone.

[c2] 2.The combustion chamber of claim 1 wherein a cross-section of the first zone has a generally triangular shape.

[c3] 3.The combustion chamber of claim 2 wherein two ends of the generally triangular shape intersect a squish zone of the combustion chamber.

[c4] 4.The combustion chamber of claim 1 wherein a portion of the second zone intersects a squish zone of the combustion chamber.

[c5] 5.The combustion chamber of claim 1 wherein the first zone has a cross-section that is generally trapezoidal.

[c6] 6.The combustion chamber of claim 5 wherein the first zone isolates the second zone from contact with a squish zone of the combustion chamber.

[c7] 7.The combustion chamber of claim 1 wherein the second zone has a cross-sectional shape that substantially follows a cross-sectional shape of the fuel spray.

[c8] 8.The combustion chamber of claim 1 further comprising an opening formed in the second zone and configured to receive a sparkplug having a tip intersecting the fuel spray projection.

[c9] 9.The combustion chamber of claim 1 wherein the fuel spray pattern is equidistant from each side wall of the second zone.

[c10] 10.The combustion chamber of claim 1 incorporated into an internal combustion engine of a recreational product.

[c11] 11.An engine comprising:
a block having at least one piston reciprocally disposed in a cylinder;
a cylinder head attached to the block over the at least one piston and cylinder;
the cylinder head having a combustion chamber aligned with the cylinder defining a squish zone between the

piston and cylinder head, the combustion chamber having:

a lower portion having a cross-sectional shape that is asymmetric about a central axis of the cylinder; and

an upper portion positioned generally coaxially about a fuel spray pattern and having a first side configured to receive a spark plug therein and a second side in contact with the lower portion.

[c12] 12.The engine of claim 11 wherein an intersection of the upper portion and the lower portion forms a circular shape.

[c13] 13.The engine of claim 11 wherein a portion of the upper portion contacts the squish zone.

[c14] 14.The engine of claim 13 wherein the lower portion has a generally triangular cross-section.

[c15] 15.The engine of claim 11 wherein the lower portion separates the upper portion from the squish zone.

[c16] 16.The engine of claim 14 wherein the generally triangular cross-section of the lower portion has one side that is in contact with the squish zone.

[c17] 17.The engine of claim 15 wherein the lower portion has a trapezoidal cross-section.

[c18] 18. The engine of claim 11 wherein a perimeter of the piston is concentric about a perimeter of the lower portion.

[c19] 19.The engine of claim 11 wherein a portion of the fuel spray pattern extends through the lower portion before passing a perimeter of the lower portion.

[c20] 20.The engine of claim 11 further comprising a spark plug opening extending into the upper portion to receive a spark plug therein having a tip that intersects the fuel spray pattern.

[c21] 21.The engine of claim 11 further comprising a fuel injector in fluid communication with the combustion chamber.

[c22] 22.The engine of claim 11 incorporated into at least one of a snowmobile, a lawn/garden equipment, an ATV, a moped, and an outboard motor.

[c23] 23.A combustion chamber comprising:
a first recess formed in a cylinder head and having an angle of penetration of less than 90 degrees from a horizontal as determined from an intake side of a cylinder; and
a second recess interconnected with the first recess and

having an angle of penetration greater that 90 degrees from the horizontal as determined from the intake side of the cylinder.

[c24] 24.The combustion chamber of claim 23 wherein the angle of penetration of the second recess is generally coaxial to an angle of discharge of a fuel injector.

[c25] 25.The combustion chamber of claim 23 wherein the angle of penetration of the first recess is approximately half the angle of penetration of the second recess.

[c26] 26.The combustion chamber of claim 23 wherein the first recess is generally centered in the combustion chamber.

[c27] 27.The combustion chamber of claim 23 wherein the second recess is offset from a center of the combustion chamber.

[c28] 28.The combustion chamber of claim 23 wherein a portion of the second recess contacts a squish zone.

[c29] 29.The combustion chamber of claim 23 wherein the first recess has a triangular cross-section with two points in contact with a squish zone.

[c30] 30.The combustion chamber of claim 23 incorporated into an internal combustion engine which is configured

to power at least one of a watercraft, an ATV, a moped, a snowmobile, and a lawn/garden equipment.

[c31] 31.A method of distributing fuel in a combustion chamber comprising the steps of:
passing a fuel spray past a first portion of a dome of a cylinder head such that a periphery of the fuel spray is equidistant from a wall of the first portion; and
passing the fuel spray past a second portion of the dome of the cylinder head such that the fuel spray is an unsymmetrical distance from a wall of the second portion.

[c32] 32.The method of claim 31 further comprising the step of positioning a spark plug in the first portion of the dome.

[c33] 33.The method of claim 31 further comprising the step of forming a uniform entrainment flow about the fuel spray passing through the first portion.

[c34] 34.The method of claim 31 wherein the step of passing fuel spray past the second portion further comprises directing the fuel spray to a center area of the combustion chamber.